



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,907	09/22/2003	Sung Oh II	2336-203	6802

7590 01/15/2008
LOWE HAUPTMAN GOPSTEIN GILMAN & BERNER, LLP
Suite 310
1700 Diagonal Road
Alexandria, VA 22314

EXAMINER

RONESI, VICKEY M

ART UNIT	PAPER NUMBER
----------	--------------

1796

MAIL DATE	DELIVERY MODE
-----------	---------------

01/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/664,907

Applicant(s)

OH, SUNG

Examiner

Vickey Ronesi

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-33 is/are pending in the application.
- 4a) Of the above claim(s) 24-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/29/07.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/7/2007 has been entered.
2. All outstanding rejections are withdrawn in light of applicant's amendment filed on 9/7/2007 which canceled claims 1-14.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

Election/Restrictions

4. Newly submitted claim 24-33 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claims 15-23 (classified in class 524, subclass 413) are drawn to a composition and claims 24-33 (classified in class 428, subclass 98) are drawn to a green sheet or electronic device. Claims 15-23 and claims 24-33 are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product, and the species are patentably distinct (MPEP § 806.05(j)). In the instant case, the intermediate product is deemed to be useful as a stand-alone film and the inventions are deemed

patentably distinct because there is nothing on this record to show them to be obvious variants. The composition undergoes a transformation because the solvent is removed and the dried composition is oriented. Note that the method claim has been grouped with the article claim given that no substantial method steps are provided to render the method claim patentably distinct from the article.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 24-33 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

5. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claim 21, the term non-plasticizing liquid fails to satisfy the written description requirement of 35 USC 112, first paragraph since there does not appear to be a written description requirement of the term in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. Applicant has not pointed to any portion of the specification, and examiner has not found any support for this phraseology in the specification as originally filed. Note MPEP 2173.05(i) which states that “[t]he mere absence of a positive recitation is not basis for an exclusion.”

6. Claims 18 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 18 and 20 appear to improperly recite a Markush group. Consequently, it is impossible to determine which elements of the group are required by the claims. When materials recited in a claim are so related as to constitute a proper Markush group, they may be recited in the conventional manner, or alternatively. For example, if “wherein R is a material selected from the group consisting of A, B, C and D” is a proper limitation, then “wherein R is A, B, C or D” shall also be considered proper (emphasis added). See MPEP § 2173.05(h).

Claim Rejections - 35 USC § 103

7. Claims 15-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Simpson (US 4,379,109).

Simpson discloses composition (col. 3, lines 44-55) comprising 15-85 vol. % ceramic powder (col. 2, lines 50-63), 5-70 vol. % polyolefin binder having a high molecular weight of at least 150,000 (col. 2, line 64 to col. 3, line 32), 10-70 vol. % plasticizer (i.e., solvent) (col. 3, lines 32-43), and 0.5-10 wt % of a thickening agent such as polyvinyl alcohols and acetate and acrylic copolymers (col. 4, line 62 to col. 5, line 5). While the amounts are in vol. %, it is the examiner's position that it is intrinsic that the broadly disclosed vol. % amounts overlap with the presently claimed amounts in wt %, absent evidence to the contrary. Note the Example in col. 6 where 7.5 wt % of polyethylene is utilized. Simpson discloses that, depending on the desired

physical properties of the final product, the high molecular weight polyethylene can be blended with standard lower molecular weight polyethylene, to the extent that a too low overall molecular weight of the blend and consequent brittleness of composition are avoided (col. 3, lines 10-15); however, Simpson does not disclose specific amounts of the lower molecular weight polyethylene.

Even so, it is the examiner's position that the amount of lower molecular weight polyethylene is a result effective variable because changing them will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In view of this, it would have been obvious to one of ordinary skill in the art to utilize appropriate amount of polyethylene, including those within the scope of the present claims, so as to produce desired end results, i.e., decreased brittleness of the composition.

While Simpson does not exemplify a composition comprising ceramic powder, polyolefin binder with a molecular weight of 400,000 or more, plasticizer, and thickening agent in explicit amounts which fall within the presently claimed amount ranges, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. *In re Lamberti* 192 USPQ 278, 280 (CCPA 1976) citing *In re Mills* 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize an emulsion composition comprising ceramic powder, polyolefin binder with a molecular weight of 400,000 or more, plasticizer, and thickening agent given that Simpson teaches each one.

8. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson (US 4,379,109) in view of Pieterse et al (US 5,268,415).

The discussion with respect to Simpson in paragraph 7 above is incorporated here by reference.

While Simpson discloses the use of plasticizer solvents such as glycols to facilitate the dispersion of the ceramic material, decrease the viscosity of the mixture and mixing required, and improves the flexibility of the green sheet (col. 3, lines 33-43), it fails to teach other solvents like presently claimed.

Pieterse et al discloses a green sheet slurry containing a higher molecular weight (at least Mw of 400,000) and teaches the use of various solvents such as paraffins, decahydronaphthalene, tetrahydronaphthalene, naphthalene, toluene, and xylene to prepare the green sheets (col. 2, lines 10-23).

Given that Pieterse et al teaches the use of suitable solvents which behave as a plasticizer in a composition to prepare green sheets, it would have been obvious to one of ordinary skill in the art to utilize one of the solvents of Pieterse et al in the green sheet composition of Simpson and thereby arrive at the presently cited claims. Furthermore, applicant has not established any criticality for the molecular weight of at least 400,000. Hence, the amount of 400,000 is *prima facie* is obvious over Simpson.

Response to Arguments

9. Applicant's arguments filed 9/7/2007 have been fully considered but they are not persuasive. Specifically, applicant argues (A) that the plasticizer of Simpson is not a solvent as claimed and (B) that the molecular weight of greater than 150,000 does not read on the presently claimed molecular weight of greater than 400,000.

With respect to argument (A), it is the examiner's position that the term "solvent" is a genus to "plasticizer" and the fact that a solvent plasticizes a resin does not keep it from also behaving as solvent. While applicant's definitions (provided by "Wikipedia") of "solvent" and "plasticizer" have been considered, such is not persuasive given that the difference in the two provided by the definitions is not applicable to this case. Specifically, there is no evidence that these plasticizers chemically react with unreactive polyethylene (i.e., there is no functional group in polyethylene that can react with the plasticizers taught by Simpson). Rather, the plasticizers dissolve the resin and decrease the overall viscosity of the composition. It is also not made clear how the plasticizers taught by Simpson could not be a solvent given that they are liquids that "dissolves a solid... resulting in a solution" (quoted from applicant's definition of "solvent"). Therefore, without evidence that the plasticizer of Simpson does not dissolve the resin and does in fact react with polyethylene, the rejection is maintained.

With respect to argument (B), the molecular weight range of greater than 150,000 taught by Simpson overlaps with greater than 400,000.

Conclusion

Application/Control Number:
10/664,907
Art Unit: 1796

Page 8

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vickey Ronesi whose telephone number is (571) 272-2701. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

1/10/2008
Vickey Ronesi



/Vasu Jagannathan/
Supervisory Patent Examiner
Technology Center 1700